Patent claims

1. Genetically modified plant cell, characterised in that it has an increased activity of at least one OK1 protein and at least one R1 protein in comparison with corresponding wild type plant cells that have not been genetically modified.

2. Genetically modified plant cell according to Claim 1, wherein the genetic modification consists in the introduction of at least one foreign nucleic acid molecule into the genome of the plant.

3. Genetically modified plant cell according to Claim 2, wherein at least one foreign nucleic acid molecule codes an OK1 protein.

4. Genetically modified plant cell according to Claim 2, wherein at least one foreign nucleic acid molecule codes an R1 protein.

5. Genetically modified plant cell according to Claim 2, wherein a first foreign nucleic acid molecule codes an R1 protein and a second foreign nucleic acid molecule codes an OK1 protein.

6. Genetically modified plant cell according to Claim 4 or 5, wherein the said foreign nucleic acid molecule coding an R1 protein codes an R1 protein of potato, wheat, maize, rice, soybean, citrus or *Arabidopsis*.

7. Genetically modified plant cell according to one of claims 1 to 6, which synthesizes a modified starch in comparison with corresponding wild type plant cells that have not been genetically modified.

8. Genetically modified plant cell according to Claim 7, wherein the modified starch is characterised in that it has an increased concentration of starch phosphate and/or a changed phosphate distribution in comparison with starch isolated from corresponding wild type plant cells that have not been genetically modified.

9. Genetically modified plant cell according to Claim 8, wherein the modified starch is characterised in that it has a changed ratio of C-3 phosphate to C-6 phosphate.

10. Plant containing genetically modified plant cells according to one of Claims 1 to 9.

11. Plant according to Claim 10, which is a starch-storing plant.

12. Plant according to Claim 11, which is a maize plant or wheat plant.

13. Propagation material of plants according to one of Claims 1 genetically modified plant cells according to one of Claims 1 to 9.

14. Harvestable plant parts of plants according to one of Claims 10, 11 or 12, containing genetically modified plant cells according to one of Claims 1 to 9.

15. Method for the manufacture of a genetically modified plant according to one of Claims 10, 11 or 12, wherein

a) a plant cell is genetically modified, wherein the genetic modification leads to an increase in the activity of an OK1 protein and an R1 protein in comparison with corresponding wild type plant cells that have not been genetically modified;

b) a plant is regenerated from plant cells from Step a); and

c) if necessary, further plants are produced with the help of the plants according to Step b).

16. Method according to Claim 15, wherein the genetic modification consists in the introduction of a foreign nucleic acid molecule into the genome of the plant cell.

17. Method according to Claim 16, wherein at least one said foreign nucleic acid molecule codes an R1 protein.

18. Method according to Claim 16, wherein at least one said foreign nucleic acid molecule codes an OK1 protein.

19. Method according to one of Claims 15 to 18, wherein the genetically modified plant synthesizes a modified starch in comparison with corresponding wild type plants that have not been genetically modified.

20. Method according to Claim 19, wherein the modified starch is characterised in that it has an increased concentration of phosphate covalently bound to the starch.

21. Method according to claim 19 or 20, wherein the modified starch is characterised in that it has a changed ratio of C-3 phosphate to C-6 phosphate.

22. Modified starch obtainable from a genetically modified plant according to one of Claims 10, 11 or 12, from propagation material according to Claim 13 or from harvestable plant parts according to Claim 14.

23. Method for the manufacture of a modified starch including the starch from a genetically modified plant cell according to one of Claims 1 to 9.

24. Method for the manufacture of a modified starch including the step of extracting the starch from a plant according to one of Claims 10, 11 or 12.

25. Use of plants according to one of Claims 10, 11 or 12 for the manufacture of a modified starch.

26. Modified starch obtainable by means of a method according to one of Claims 23 or 24.

27. Method for the manufacture of a derived starch, wherein modified starch according to Claim 22 or 26 is derived.

28. Derived starch obtainable by means of a method according to Claim 27.

29. Use of modified starch according to one of Claims 22 or 26 for the manufacture of derived starch.

30. Flours containing modified starch according to Claim 22 or 26.

31. Flours obtainable from plant cells according to one of Claims 1 to 9, from parts of plants according to one of Claims 10, 11 or 12, from propagation material according to Claim 13 or from harvestable plant parts according to Claim 14.

32. Method for the manufacture of flours including the step of milling plant parts from plants according to one of Claims 10, 11 or 12 or from propagation material according to Claim 13 or harvestable material according to Claim 14.

33. Use of genetically modified plant cells according to one of Claims 1 to 9 or of plants according to one of Claims 10, 11 or 12 for the manufacture of flours.

34. Recombinant nucleic acid molecule containing a nucleic acid molecule coding an OK1 protein and a nucleic acid molecule coding an R1 protein.

35. Vector containing a recombinant nucleic acid molecule according to Claim 34.

36. Vector according to Claim 35, wherein the recombinant nucleic acid molecules are linked with regulatory sequences that initiate the transcription in prokaryotic or eukaryotic cells.

37. Host cell that is genetically modified with a recombinant according to Claim 34 or with a vector according to one of Claims 35 or 36.

38. Composition containing a recombinant nucleic acid molecule according to Claim 34 or with a vector according to one of Claims 35 or 36.

39. Composition containing a nucleic acid sequence coding an OK1 protein and a nucleic acid sequence coding an R1 protein.

40. Use of a composition according to one of Claims 38 or 39 for the transformation of plant cells.